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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,451	12/22/2005	Piero Iacopetti	6097P064	3918

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/26/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/532,451

Applicant(s)

IACOPETTI, PIERO

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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Applicant's Amendment dated September 18, 2006 has been carefully considered but is non-persuasive. Claims 1-9 and 11-12 are pending. The new abstract is acceptable. The specification has been amended to correct the informalities therein, and to provide antecedent basis for the subject matter of claim 11. The claims have been amended to correct the informalities therein, and to overcome most of the rejections under 35 USC 112, second paragraph. Correction of these matter is noted with appreciation.

With regard to Applicant's comment that claims 1-4 and 6-12 are pending, and that claim 5 is canceled, the examiner respectfully points out that this comment contains typos. Claims 1-9 and 11-12 are pending, with claim 10 being canceled. The Replacement Sheet of Drawings for Figure 2, while appreciated, still does not show the grooves and pins recited in claim 8. Although reference numeral 130 has been added to Figure 2, this figure does not show the grooves and pins with clarity.

Applicant has argued concerning the rejection of claims 1-9 and 12 under 35 U.S.C. 103(a) as being unpatentable over Liotta 5,993,150 in view of Applicant's Prior Art Figure 1 that independent claim 1 has been amended to recite that the first cooling holes are arranged circumferentially and are forty-two in number, and that the Office action statement that the number of cooling holes 38d in Liotta is a result-effective variable which directly influences the amount and rate of cooling fluid flow as well as the cooling effect on the support devices 30 is disagreed with. Specifically, Applicant has argued that in order for the parameter to be recognized as result-effective, the prior art has to recognize the parameter, citing MPEP

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2144.05(II)(B). Applicant has further argued nothing in Liotta itself recognizes that the number of cooling holes directly influences the amount and rate of cooling fluid flow or the cooling effect on the support device, and that the major thrust of Liotta is to improving the cooling using two cooling air sources at different pressure and temperature. These arguments are respectfully not persuasive. While Applicant is correct in pointing out that Liotta does not specifically address the number of first cooling holes 38b, the number of cooling holes and the diameter of cooling holes in the art of gas turbine engine design is well-known to be a result-effective variable which directly influences the amount and rate of cooling fluid flow as well as the cooling effect. It would have been obvious to a person having ordinary skill in the art to select the number of first cooling holes in Liotta such that they are a specific value, such as forty-two first cooling holes, for the purpose of optimizing the amount and rate of cooling fluid flow as well as the cooling effect on the support devices. Concerning Applicant's argument that Liotta teaches away from having forty-two holes on the internal casing because the configuration of two cooling air sources of Liotta reduces the need to extract cooling air from the compressor (as in column 7, lines 1-2 of Liottta), the examiner respectfully disagrees. Figure 3 of Liotta is a sectional view along line 3-3 of figure 2, and shows seven first cooling holes 38d. Modifying Liotta to include forty-two first cooling holes 38d would not be unreasonable since by extrapolation of figure 3, there would reasonably appear to be greater than forty-two first cooling holes around the circumference of the internal casing 34.

Claim Objections

Claim 6 is objected to because of the following informalities: Appropriate correction is required.

Claim 6 is non-idiomatic. One suggestion is changing “further comprising” in claim 6, line 2 to -- wherein --.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 7 and 8, line 2, which recites “said support devices” is unclear, because claim 1 from which these claims depend only recites a single support device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 11-12 (as far as claims 7 and 8 are definite and understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Liotta 5,993,150 in view of Applicant’s Prior

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Art Figure 1. Liotta discloses an improved assembly substantially as claimed, including an internal casing 34 and a support device 30 in a gas turbine stage, with nozzles 20b grouped together in sectors, and an external casing 36, with the support device being kept in position by the internal casing, there also being formed first circumferential cooling holes 38d on the internal casing and second cooling holes 38a, 40b on the support device, characterized in that the first cooling holes of the internal casing have an extension substantially parallel to the axis of the gas turbine. The support device has an internal cooling recess 40f, and cooling inserts 42 are provided in the support devices 30, with the cooling inserts being brazed along an external diameter of the support devices (column 4, lines 14-19). An unnumbered anti-rotation pin connected to the outer shroud of nozzles 20b is provided which is located substantially at the front of the support device (which acts an anti-rotation pin for an unnumbered seal). A contact surface (at the end of 32b) supporting an axial thrust exists between the internal casing 34 and the support device 30. The support devices are grouped together in sectors. The second cooling holes 40b are arranged at the rear of the support device. The stage is the first high pressure stage of a gas turbine engine 10.

However, Liotta does not disclose that each of the nozzle sectors are connected externally to the external casing of the gas turbine by means of the support device (claim 1), does not disclose there being forty-two first cooling holes (claim 1), and does not disclose that the support devices are kept in position by the internal casing by means of grooves and pins and interlocking joints with the nozzles (claim 8). Liotta also does not disclose that the first cooling holes have an approximate diameter of 1.8 mm (claim 11).

Applicant's Prior Art Figure 1 (and the specification on page 6, lines 11-20) shows an assembly for nozzles in a gas turbine having unnumbered nozzle sectors which are connected externally to an unnumbered external casing of the gas turbine by means of support devices 14, with the support devices being kept in position by an internal casing 12 by means of unnumbered grooves and unnumbered pins and interlocking joints 16 with the nozzles, for the purposes of providing additional support for the nozzles and preventing the support devices from moving.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the assembly of Liotta such that each of the nozzle sectors are connected externally to the external casing of the gas turbine by means of the support device, and such that the support devices are kept in position by the internal casing by means of grooves and pins and interlocking joints with the nozzles, as taught by Applicant's Prior Art Figure 1, for the purposes of providing additional support for the nozzles and preventing the support devices from moving.

The number of first cooling holes 38d (as recited in claim 1) and the diameter of the first cooling holes 38d (as recited in claim 11) are result-effective variables which directly influence the amount and rate of cooling fluid flow as well as the cooling effect on the support devices 30. It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to select the number of first cooling holes as well as the diameter of the first cooling holes in the modified assembly of Liotta such that they are specific values, such as

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forty-two first cooling holes and such as a diameter of approximately 1.8 mm, for the purpose of optimizing the amount and rate of cooling fluid flow as well as the cooling effect on the support devices, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

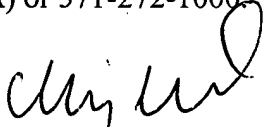
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.
December 14, 2006



Christopher Verdier
Primary Examiner
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